

**What is Claimed:**

1. A storage platform system for a hardware/software interface system (e.g., WinFS), said storage system comprising:
  - multiple instances of a storage platform;
  - a synchronization subsystem native to the hardware/software interface system that enable the system to synchronize the multiple instances of said storage platform.
2. The system of claim 1 wherein the synchronization subsystem synchronizes only a subset of data, from among the entirety of data on said data store, during a synchronization operation.
3. The system of claim 1 wherein a first instance of the storage platform is a replica, that is, running on a hardware/software interface system that has the synchronization subsystem (e.g., WinFS), and a second instance of the storage platform is a data source, that is, running on a hardware/software interface system that does not have the synchronization subsystem (e.g., non-WinFS).
4. The system of claim 3 wherein the synchronization between the replica and the data source is facilitated by a synchronization adapter that virtualizes the data source by interfacing with an application programming interface (API) of the hardware/software interface system of the replica.
5. The system of claim 1 wherein a first pair of instances synchronizes changes independently of a second pair of instances, and wherein both the first pair of instances and the second pair of instances are part of a common sync community.
6. The system of claim 1 wherein conflicts in synchronization are automatically detected and resolved based on predefined determinable criteria.

7. The system of claim 6 wherein certain of said conflicts are resolved by being logged for manual resolution by an end-user.
8. The system of claim 1 wherein the synchronization subsystem tracks the state of previous synchronizations with a sync partner, and thereby only synchronizes change units with that partner that have changed since the last synchronization (i.e., “net changes”).
9. A method for synchronizing multiple instances of a storage platform for a hardware/software interface systems (e.g., WinFS), said method comprising:
  - dividing said storage platform into basic units of granularity (e.g., change units);
  - sequentially enumerating changes and tracking said changes on a per change unit basis;
  - for each instance, tracking the state of changes for that instances, as well as the state of changes for a plurality of other known instances in the sync community (sync partners); and
  - for synchronization, identifying new changes by comparing the enumerated changes for a particular instance with the state of changes for that instance.
10. The method of claim 9, wherein a first instance, a replica, is instantiated on a hardware/software interface system that directly supports Item-based synchronization (WinFS) and wherein a second instance, a data source, is instantiated on a hardware/software interface system that does not directly support Item-based synchronization (non-WinFS), said method further comprising the use of an adapter to virtualize the non-WinFS instance via a synchronization application programming interface.
11. The method of claim 10 further comprising detecting synchronization conflicts at the level of change unit granularity.
12. The method of claim 10 further comprising:
  - instances reporting success, failure, and/or conflicts at individual change unit level on change application (sync data); and

applications (including but not limited to adapters and other synchronization controlling applications) using sync data for updating a backend state.

13. A method for synchronizing a replica with a data source (each a sync partner), wherein both said replica and said data source have change state information that is maintained by each synch partner, and wherein said data source (non-WinFS) uses an adapter to interface with a hardware/software interface system of said replica (WinFS), said method comprising:

said replica sending to said adapter an updated state information for said replica that, based on a last state information for said data source, reflect changes that have been made since the last synchronization as reflected in said last state information for said data source (“new changes”); and

said adapter, receiving said updated state information for said replica and said new changes, implementing as many changes to the data source as possible and tracking success or failure for each change on a change unit by change unit basis.

14. The method of claim 13 further comprising:

said adapter calculating the new state of the data source based on the success or failure for each change on a change unit by change unit basis, storing this new state information, and transmitting this new state information to the hardware/software interface system of the replica (WinFS)

said hardware/software interface system of the replica (WinFS) storing said new state information for said data source for future use by said replica.

15. The method of claim 13 further comprising:

said adapter transmitting to the hardware/software interface system of the replica (WinFS) the success or failure for each change on a change unit by change unit basis;

said hardware/software interface system of the replica (WinFS) calculating a new state information for the data source based on the success or failure for each change to the data source on a change unit by change unit basis;

said hardware/software interface system of the replica (WinFS) transmitting the new state information to the adapter and storing said new state information for future use by said replica; and

said adapter receiving and storing said new state information.

16. A computer-readable medium comprising computer-readable instructions for a storage platform system on a hardware/software interface system (e.g., WinFS), said storage system comprising instructions for synchronizing a local instance from among multiple instances of a storage platform.

17. The system of claim 16 wherein the synchronization subsystem synchronizes only a subset of data, from among the entirety of data on said data store, during a synchronization operation.

18. The computer-readable instructions of claim 16 wherein a first instance of the storage platform is a replica, that is, running on a hardware/software interface system that has the synchronization subsystem (e.g., WinFS), and a second instance of the storage platform is a data source, that is, running on a hardware/software interface system that does not have the synchronization subsystem (e.g., non-WinFS).

19. The computer-readable instructions of claim 18 wherein the synchronization between the replica and the data source is facilitated by a synchronization adapter that virtualizes the second instance by interfacing with an application programming interface (API) of the hardware/software interface system of the first instance.

20. The computer-readable instructions of claim 16 wherein a first pair of instances synchronizes changes independently of a second pair of instances, and wherein both the first pair of instances and the second pair of instances are part of a common sync community.

21. The computer-readable instructions of claim 16 wherein conflicts in synchronization are automatically detected and resolved based on predefined determinable criteria.
22. The computer-readable instructions of claim 21 wherein certain of said conflicts are resolved by being logged for manual resolution by an end-user.
23. The computer-readable instructions of claim 16 wherein the synchronization subsystem tracks the state of previous synchronizations with a sync partner, and thereby only synchronizes change units with that partner that have changed since the last synchronization (i.e., “net changes”).
24. A computer-readable medium comprising computer-readable instructions for synchronizing multiple instances of a storage platform for a hardware/software interface systems (e.g., WinFS), said computer-readable instructions comprising instructions for:
  - dividing said storage platform into basic units of granularity (e.g., change units);
  - sequentially enumerating changes and tracking said changes on a per change unit basis;
  - for each instance, tracking the state of changes for that instances, as well as the state of changes for a plurality of other known instances in the sync community (sync partners); and
  - for synchronization, identifying new changes by comparing the enumerated changes for a particular instance with the state of changes for that instance.
25. The computer-readable instructions of claim 24, further comprising instructions whereby a first instance, a replica, is instantiated on a hardware/software interface system that directly supports Item-based synchronization (WinFS) and wherein a second instance, a data source, is instantiated on a hardware/software interface system that does not directly support Item-based synchronization (non-WinFS), said method further comprising the use of an adapter to virtualize the non-WinFS instance via a synchronization application programming interface.
26. The computer-readable instructions of claim 25 further comprising detecting synchronization conflicts at the level of change unit granularity.

27. The computer-readable instructions of claim 25 further comprising:  
instances reporting success, failure, and/or conflicts at individual change unit level on change application (sync data); and  
applications (including but not limited to adapters and other synchronization controlling applications) using sync data for updating a backend state.

28. A computer-readable medium comprising computer readable instructions for synchronizing a replica with a data source (each a sync partner), wherein both said replica and said data source have change state information that is maintained by each synch partner, and wherein said data source (non-WinFS) uses an adapter to interface with a hardware/software interface system of said replica (WinFS), said computer-readable instructions comprising instructions for said replica to send to said adapter an updated state information for said replica that, based on a last state information for said data source, reflect changes that have been made since the last synchronization as reflected in said last state information for said data source (“new changes”), such that said adapter, receiving said updated state information for said replica and said new changes, can implement as many changes to the data source as possible and track success or failure for each change on a change unit by change unit basis.

29. The computer-readable instructions of claim 28 further comprising instructions for said hardware/software interface system of the replica (WinFS) storing said new state information for said data source for future use by said replica, provided that said adapter has calculated the new state of the data source based on the success or failure for each change on a change unit by change unit basis and has this new state information and transmitted this new state information to the hardware/software interface system of the replica (WinFS).

30. The computer-readable instructions of claim 28, wherein said adapter transmits to the hardware/software interface system of the replica (WinFS) the success or failure for each change on a change unit by change unit basis, further comprising instructions for:

said hardware/software interface system of the replica (WinFS) to calculate a new state information for the data source based on the success or failure for each change to the data source on a change unit by change unit basis;

said hardware/software interface system of the replica (WinFS) to transmit the new state information to the adapter and storing said new state information for future use by said replica, such that said adapter can receive and store said new state information.